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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------|-------------|----------------------|---------------------|------------------|
| 10/501,005 | 11/22/2004 | Masayuki Takenaka | Q81942 | 3345 |
| 23373 | 7590 | 08/13/2007 | EXAMINER | |
| SUGHRUE MION, PLLC | | | TAMAI, KARL I | |
| 2100 PENNSYLVANIA AVENUE, N.W. | | | | |
| SUITE 800 | | | ART UNIT | PAPER NUMBER |
| WASHINGTON, DC 20037 | | | 2834 | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/501,005 | Applicant(s) TAKENAKA ET AL. | |
| | Examiner Tamai I.E. Karl | Art Unit 2834 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The objection to the drawings is withdrawn.

Claim Objections

2. The objection to claim 11 is withdrawn.

Claim Rejections - 35 USC § 112

3. The rejection of claims Claims 1 & 6-10 are withdrawn.

Specification

4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 1, 2, 5, 6, 7, & 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al. (Hara)(US 6323613) in view of Regnier et al. (US 6236566, supplied by applicant).

With respect to claim 2, Hara teaches a drive unit including: an electric motor (Fig. 9, M), a drive unit casing (Fig. 9, #13) accommodating therein the electric motor, and inverter (Fig. 9, U) that controls the electric motor, and a flow passage (as seen in Fig. 6) of a refrigerant that cools the inverter, the drive unit characterized in that the inverter is mounted on the drive unit casing such that a heat sink (Fig. 6, #11) united with a substrate (as seen in Fig. 9) of the inverter defines a space on a portion thereof opposed to the drive unit casing (as seen in Fig. 9), the space is communicated to the flow passage of the refrigerant (as seen in Fig. 6), the heat sink comprises heat-sink side fins extending into the space toward the drive unit casing, separation means (Fig. 9, #12) for preventing thermal conduction is provided in the space. Hara teaches the separation 12 being a thermally insulating material (col. 8, line 33), but it does not explicitly teach both the heat sink fins and the drive unit casing directly contacting the separation means (Fig. 9, appears to teach such an arrangement, but not clearly).

However, Regnier teaches heat sink fins (Fig. 5, #44) directly contacting a separation means (Fig. 5, #46). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fins and separation means of Hara in view of the direct contact as taught by Regnier because optimizes the exchange of heat via the fins by preventing an unwanted flow of water around them (Regnier, Col. 4, Lines 5-11).

With respect to claim 1, Regnier teaches the optimized heat passage V on either formed by cooling fins which taper to a point. It would have been obvious to taper to cooling fins of the heat sink in contact with the drive unit to increase the surface areas in in which heat is dissipated to the coolant.

With respect to claim 5, Hara in view of Regnier teaches the drive unit of claim 2, wherein the separation means comprises a laminated (layered) member. The limitation of the separation means being formed by laminating a low thermal conductive member on a separation member is a method limitation given little patentable weight in an apparatus claim.

With respect to claim 6, the drive unit casing including fins 13a extending into the space between the casing 10 and the inverter U.

With respect to claim 7, Hara in view of Regnier teaches the drive unit of claim 2, and Hara teaches that the space is compartmented by the separation means into a first chamber facing toward the heat sink, and a second chamber facing toward the drive unit casing (as seen in Fig. 6).

With respect to claim 9, Hara teaches a separate inverter casing/cover (see figure 9).

With respect to claim 10, Hara teaches the cooling fins (on 11) and 13a forming common flow path (figure 12).

With respect to claim 11, Hara in view of Regnier teaches the drive unit of claim 3, and Hara teaches that the low thermal conductive means is shaped to follow contact portions of the heat-sink side fins and drive-unit-casing side fins (as seen in Fig. 9).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al. (Hara)(US 6201365) and Regnier et al. (US 6236566, supplied by applicant), in further view of Suzuki (US 2001/0014029). Hara and Regnier teach every aspect of the invention except the separate housing for the inverter. Suzuki teaches that the inverter is received in an inverter casing composed of a member separate from the inverter with a substrate thereof fixed to a bottom wall of the inverter casing and constituting a heat sink, of which a substrate is united with the bottom wall of the inverter casing (as seen in Fig. 2). It would have been obvious to a person of ordinary skill in the art to construct a separate housing for the inverter, as shown in Suzuki, to provide easy replacement to the inverter.

Allowable Subject Matter

9. Claim 4 is allowed.

Response to Arguments

10. Applicant's arguments filed 6/11/2007 have been fully considered but they are not persuasive. Applicant's argument that separator of Regnier does not prevent thermal conduction is not persuasive. Hara teaches the separator 12 is a highly thermally insulative material (col. 8, line 32), such that it will prevent thermal conduction between the motor housing and the inverter. Regnier is provided to teach the separation member 46 in contact with the cooling fins and drive unit casing. Regnier

teaches that the separation means in contact with the cooling fins increases thermal conduction from the fins to the fluid by restricting the movement of the fluid to along the fins instead of around the fins (col. 4, lines 5-10). The movitation is clear and literal, therefore the rejection is proper and maintained.

Conclusion

11. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

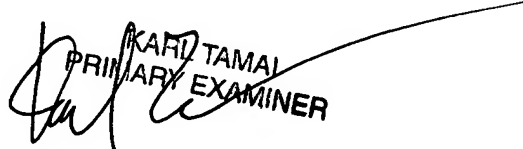
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

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The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (571) 273 - 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai
PRIMARY PATENT EXAMINER
August 8, 2007



KARL I TAMAI
PRIMARY EXAMINER